DEC STD 085-0 COMPONENT QUALIFICATION - REQUIREMENTS TO SUPPORT PHASE REVIEW PROCESS

DOCUMENT IDENTIFIER: A-DS-EL00085-00-0 Rev A, 07-Oct-1989

ABSTRACT: This document provides a consistent process across Engineering and Manufacturing for component qualification, and establishes clear requirements that support Phase Exit Criteria.

APPLICABILITY: This standard applies to all Engineering and Manufacturing organizations involved with component qualifications prior to First Revenue Ship (FRS).

STATUS: **APPROVED** 07-Oct-1989; use VTX SMC for current status.

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1 INTRODUCTION

1.1 PURPOSE

This document provides a consistent process across Engineering and Manufacturing for component qualification and establishes clear requirements to support the Phase Review Process Exit Criteria.

The process defined herein accounts for the practical aspect of time-to-market and the necessity for informed risk taking in making a First Revenue Ship (FRS) decision. This standard also identifies the information required during the key steps of the Phase Review Process, culminating with the necessary information being available to the sponsoring organization to make the FRS decision.

1.2 SCOPE

This standard applies to all Engineering and Manufacturing organizations involved with component qualifications. The components involved are outlined under subhead 1.3.

1.3 DEFINITIONS

component qualification - A component is qualified when a signed-off purchase specification exists, full technical and process compatibility qualification testing is satisfactorily completed, and the part is listed on the Qualified Vendors Listing (QVL) with a rating of Q. (See *DEC STD 156-0 Introducing New Purchased Parts and Maintaining Purchased Parts Information: Standard Procedure,* Component Engineering Procedures section for details. See *DEC STD 084-0 Process and Technology Phase Review Procedure* for satisfactory process qualification.)

components - The components within the scope of this standard are listed in *DEC STD 012-2 Unified Class Codes for Part Identifier Class Codes* Parts Class Codes table, and are limited to the following classes.

Class	Component Type	Class	Component Type
10	Capacitors	21	LSI Mos
11	Diodes, rectifiers, LED, etc.	23	LSI Programmable
12	Electromechanical, mechanical devices	30 *	Electromechanical assemblies
13	Resistors	50 *	Etched boards
15	Transistors	54 *	Module assemblies
16	Transformers, chokes, delay lines	55 *	Fabrications
17	Wire, cables, fiber optic cables	74 *	Mechanical fabrications
18	Crystals, self-contained oscillators	90	Hardware
19	LSI Bipolar	99	Packaging, shipping materials
20	Hybrids		

* These component classes may not have Purchase Specifications and may be qualified by groups other than Component Engineering; therefore, the Engineering Manager will need to identify the responsible technical person.

High risk components - Components that require special attention to meet the FRS goal due to component complexity, limited sources, critical product functionality, schedule pressures, resource limitations, and similar unique characteristics.

Low risk components - Components by definition that are not "high risk". Components originally rated "low risk" can subsequently become "high risk" if they begin to impact the FRS schedule.

Typically, these are components that are using new technology or have unique characteristics with insufficient time or resources to complete the qualification process.

FCD - The Functional Class Descriptor for functionally similar components regardless of part class (for example: fuses can be in both Class 12 and 90).

BOM - Bill of materials.

PNRF - Part Number Request Form used to initiate the part number assignment and the qualification of a new component.

sponsoring organization - Organization that has budgeted for the product's development. May be a PBU, Business segment, group or non-Engineering function such as Marketing or Sales.

class - Identification of a part by the part Identifier Class code per DEC STD 012-2.

2 REQUIREMENTS

The following table references the relevant Product Deliverables from Table 1 of DEC STD 028-0 to the specific component qualification deliverables during the Phase Review Process. Product Phase Review details are outlined in *EL-CP356-00, Corporate Phase Review Process Guide*.

Phase	DEC STD 028-0 Exit Criteria	DEC STD 085-0 Requirements	DEC STD 085-0 Responsibility
0	Product Requirements	Identify high risk component functionalities. An exit criteria for Phase 0.	Product Manager Component Engineering
0	Alternatives Feasibility Study	Identify high risk components necessary to support stated functionality.	Engineering Manager Component Engineering
1	Engineering Development Plan	Identify high and low risk components by the next level of technical detail such as FCD, class, or family description at a minimum.	Engineering Manager
1	Manufacturing Plan	Establish a qualification strategy for the identified components. An exit criteria for Phase 1.	Component Engineering
2	Detailed Design Spec	All PNRFs submitted to Component Engineering	Engineering Manager
2	Design Verification Completed	Identify high and low risk components from BOM and parts list.	Engineering Manager Component Engineering
2	Updated Detailed Manufacturing Implementation Plan	Establish action plans and schedule for high risk components including previous low risk components that are now high risk due to time limitations. An exit criteria for Phase 2.	Engineering Manager Component Engineering
3	PAC Product Announcement Criteria Met	All components are now qualified or substantially through the qualification cycle. On components not fully qualified, action plans and risk analysis have been established.	Product Manager Engineering Manager Component Engineering
3	First Revenue Ship (FRS) Met	All components are fully qualified. If not, each component not fully qualified shall be capable of full qualification and be supported by a waiver per *DEC STD 066-2 Waiver to Digital Standards* (see subhead 2.1 of this standard). This will provide all the necessary information to the PBU for the FRS decision. An exit criteria for Phase 3.	Product Manager Engineering Manager

2.1 WAIVER REQUIREMENTS

The Product Engineering Manager or designate from the design group will most likely originate the waiver request and its contents. It shall contain or have attached:

- A succinct description of the component requirements that are not qualified
- A risk analysis
- An impact analysis
- An action plan for 100% qualification
- Key milestone dates
- Identified responsibility for key milestones
- Any other information necessary for a waiver decision

The responsible Component Engineer (identified in the waiver request) shall provide all the necessary component technical information. The Product Waiver Request shall also list the relevant Quality Manager and Component Engineering Manager. These people shall also be part of the normal waiver approval process before the waiver is sent to the PBU Manager /Sponsoring Organization for a decision. The PBU Manager/Sponsoring Organization is solely responsible for approval or disapproval of the waiver request.

APPENDIX A

REFERENCED DOCUMENTS

A.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-00012-02	*DEC STD 012-2 Unified Numbering Code for Part Identifier Class Codes*
EL-00028-00	*DEC STD 028-0 Phase Review Policy*
EL-00066-02	*DEC STD 066-2 Waivers to Digital Design Standards*
EL-00084-00	*DEC STD 084-0 Process and Technology Phase Review Procedure*
EL-00156-00	*DEC STD 156-0 Introducing New Purchased Parts and Maintaining Purchased Parts Information: Standard Procedures*
EL-CP356-00	*Corporate Phase Review Process Guide*

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